WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Friday, January 16, 2004

Hide?	Set Name	Query	Hit Count
		DB=EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES; OP=OR	
☐	L11	L10 and (internet or web or www or online)	8
☐	L10	((input$ or select$ or choos$ or determin$ or decid$) with (dimension or length or width or depth)) and (user with design$)	154
		DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR	
☐	L9	L3 and ((cost$ or fee) with (material or part$) with ship$)	2
☐	L8	L5 and ((cost$ or fee) with (material or part$) with ship$)	1
☐	L7	L5 and ((cost$ or fee) with (material or part$ or ship$))	22
☐	L6	L5 and ((select$ or choos$ or determin$ or decid$) adj2 (package or box$))	2
☐	L5	L4 and (internet or web or www or online)	25
☐	L4	L3 and (bill$ with material)	34
☐	L3	L2 and (user with design$)	906
☐	L2	L1 and ((input$ or select$ or choos$ or determin$ or decid$) with quantit$)	26014
☐	L1	=20010122	401201

END OF SEARCH HISTORY

First Hit

☐ Generate Collection | Print

L11: Entry 1 of 8 File: JPAB May 29, 1984

PUB-NO: JP359093420A
DOCUMENT-IDENTIFIER: JP 59093420 A
TITLE: SUPPLYING METHOD OF SPECTACLE LENS WITH OPTIMUM THICKNESS

PUBN-DATE: May 29, 1984

INVENTOR-INFORMATION:
NAME COUNTRY
SAIGO, TAKESHI
KITANI, AKIRA

ASSIGNEE-INFORMATION:
NAME COUNTRY
HOYA CORP

APPL-NO: JP57203436
APPL-DATE: November 19, 1982

INT-CL (IPC): G02C 13/00

ABSTRACT:

PURPOSE: To supply a spectacle lens with optimum thickness by sending various kinds of information on the precision value, kind, and the shape on a spectacle frame and a lens from a shop to a factory.

CONSTITUTION: The kind of a frame (synthetic-resin made, metallic, nylon-yarn fixed, etc.), the shape of the frame (distance between frame center, noise witdth, lateral width and longitudinal width of one eye, etc.), position information on a lens prescription value in the frame, i.e., and pieces of information on distance between user's corneal peaks, optical center of the lens, arrangements of the near view area of a multifocal lens in the frame, etc., are obtained at an optician and those are inputted to a manufacture factory through online transmission by using a computer, etc. Those abundant data on the frame shape is inputted to the computer for supplying lenses with optimum thickness; abundant data such as distance data from a frame center O to plural points n1~nn are inputted and outputted, article number by article number, simularity of design and size are inputted and the frame drawn on a lattice-shaped chart to obtain data, etc. is inputted and outputted.

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L11: Entry 3 of 8 File: DWPI Mar 12, 2002

DERWENT-ACC-NO: 2002-324683
DERWENT-WEEK: 200236
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TITLE: Website creation system inserts designated data into spreadsheet whose dimension is selected depending on layout of website as desired by user

PATENT-ASSIGNEE: SUZUKI T (SUZUI), TAKAHASHI T (TAKAI)

PRIORITY-DATA: 2000JP-0258381 (August 29, 2000)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	JP 2002073471 A	March 12, 2002		005	G06F013/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP2002073471A	August 29, 2000	2000JP-0258381	

INT-CL (IPC): G06 F 3/00; G06 F 13/00

ABSTRACTED-PUB-NO: JP2002073471A
BASIC-ABSTRACT:

NOVELTY - A client (1) and server (2) are connected through internet (3) and dimension of a spreadsheet is selected depending on layout of website as desired by the user. A website is produced by inserting designated data into the spreadsheet.

USE - For creation of website by individual users and in enterprises.

ADVANTAGE - Enables simple creation of website easily.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of website creation system. (Drawing includes non-English language text).

Client 1

Server 2

Internet 3

ABSTRACTED-PUB-NO: JP2002073471A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/4

DERWENT-CLASS: T01
EPI-CODES: T01-C; T01-H;

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☐ Generate Collection | Print

L11: Entry 4 of 8 File: DWPI Mar 7, 2002

DERWENT-ACC-NO: 2002-339711
DERWENT-WEEK: 200367
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TITLE: Method of generating web site for providing universal interface for managing content on large computer networks by generating one or more pages of web site based upon description of the site and retrieved web site data

INVENTOR: CHAR, H; DEAN, A ; EVESSON, G ; HORNER, P ; NEILSON, P ; SHING, D ; SLANEY, D ; UNDERWOOD, J ; UNDERWOOD, M

PATENT-ASSIGNEE: CLICK THINGS INC (CLICN)

PRIORITY-DATA: 2000US-0702356 (October 30, 2000), 2000US-0651796 (August 30, 2000), 2000US-0651874 (August 30, 2000), 2000US-0651875 (August 30, 2000), 2000US-0651907 (August 30, 2000), 2000US-0652612 (August 30, 2000)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	WO 200219153 A1	March 7, 2002	E	248	G06F017/21
☐	AU 200114580 A	March 13, 2002		000	G06F017/21

DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
WO 200219153A1	November 2, 2000	2000WO-US30286	
AU 200114580A	November 2, 2000	2001AU-0014580	
AU 200114580A		WO 200219153	Based on

INT-CL (IPC): G06 F 17/21

RELATED-ACC-NO: 2003-707689

ABSTRACTED-PUB-NO: WO 200219153A
BASIC-ABSTRACT:

NOVELTY - The method involves generating a description of a web site based upon one

or more determined characteristics for each of the one or more web site dimensions. Web site data may be retrieved in accordance with the generated description of the web site. One or more pages of the web site may be generated based upon the description of the web site and the retrieved web site data for presentation.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for:

(a) a method of generating multimedia information

(b) a method of generating web site

(c) a system for generating web site

(d) a set of computer program instructions for generating a web site

(e) a method of modifying multimedia information

(f) a method of modifying a web site

USE - For providing a universal interface for managing content on large computer networks such as World Wide Web maintained on the Internet as a prevalent communications medium for wide-ranging purposes from information gathering and exchange to commercial transactions.

ADVANTAGE - Provides an improved web site generation that harnesses and coordinates all the resources required for creating, updating and maintaining a quality web site. Allows a user to make various selections regarding design of a web site and for the web site to maintain an overall consistency, regardless of these choices. Allows for the collection of various information from an external database to be used in making automatic selections regarding the design of a web site. A user may change the look and feel of a web site easily and throughout the web site, but the content and navigation of the web site is maintained. Allows various applications to be launched from within the generated web site while maintaining a user at the web site. Allows for rapid proliferation of the hosted sites without the need for experienced design and programming personnel to be involved on a site-by-site basis. Allows for the taking and fulfillment of purchase orders.

DESCRIPTION OF DRAWING(S) - The drawing illustrates the interface and functionality of creating and editing a new web site provided by the web definer module according to an embodiment of the present invention.

ABSTRACTED-PUB-NO: WO 200219153A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.53/82

DERWENT-CLASS: T01
EPI-CODES: T01-J05B4P; T01-N01A2A; T01-N01C; T01-N03A1; T01-N03B2A; T01-S03;

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☐ Generate Collection | Print

L11: Entry 5 of 8 File: DWPI Dec 13, 2001

DERWENT-ACC-NO: 2002-359864
DERWENT-WEEK: 200239
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TITLE: Cyber interior designing device

INVENTOR: YOO, J H

PATENT-ASSIGNEE: YOO J H (YOOJI)

PRIORITY-DATA: 2000KR-0031110 (June 7, 2000)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	KR 2001110568 A	December 13, 2001		001	G06F017/00

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
KR2001110568A	June 7, 2000	2000KR-0031110	

INT-CL (IPC): G06 F 17/00

ABSTRACTED-PUB-NO: KR2001110568A
BASIC-ABSTRACT:

NOVELTY - A cyber interior designing device is provided to enable a user to directly participate in interior design and calculate interior design expenses, and materials and products used in the interior design to be purchased through an Internet electronic commerce.

DETAILED DESCRIPTION - A hard disk(111) collects at least one blueprint information corresponding to at least one address information by area, and gathers the address information and the blueprint information in a database. A 3D reproduction computer (113) reproduces an interior structure in three dimension based on the blueprint information stored in the hard disk, outputs the three dimension information to correspond to the address information, stores at least one product information for the interior in the output three dimension information, and add the product information to the three dimension information according to a user's selection. A web server(115) communicates with the 3D reproduction computer, and provides the three dimension information according to the address information, the product information, and a synthetic program.

ABSTRACTED-PUB-NO: KR2001110568A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/10

DERWENT-CLASS: T01
EPI-CODES: T01-J;

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☐ Generate Collection | Print

L11: Entry 6 of 8 File: DWPI Aug 4, 2001

DERWENT-ACC-NO: 2002-073528
DERWENT-WEEK: 200210
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TITLE: Method for simulating customized built-in wardrobe using internet

INVENTOR: LEE, I O

PATENT-ASSIGNEE: LEE I O (LEEII)

PRIORITY-DATA: 2000KR-0064926 (November 2, 2000)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	KR 2001073988 A	August 4, 2001		001	G06F017/60

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
KR2001073988A	November 2, 2000	2000KR-0064926	

INT-CL (IPC): G06 F 17/60

ABSTRACTED-PUB-NO: KR2001073988A
BASIC-ABSTRACT:

NOVELTY - A method for simulating a customized built-in wardrobe using the Internet is provided to simulate a designed built-in wardrobe automatically by providing all sorts of information(kinds of wardrobe, door and an accessory) to a client through the Internet and recommending a ready-made built-in wardrobe or designing a built-in wardrobe wanted by a user.

DETAILED DESCRIPTION - If a user accesses to a server system, a main web page is displayed on a user client screen(S31). If the user clicks a recommendation design menu of a main web page, a web page for inputting a width length is displayed on a user client's screen(S32). If the user selects wanted width length, a built-in wardrobe corresponded to the width length is displayed on user client's screen (S33). The user selects a door and an accessory necessary to the built-in wardrobe, and the selected information is stored in a door DB and an accessory DB(S34). The user decides a remaining length by comparing total length and the current width length of the built-in wardrobe and calculates a molding process area, and the molding process information is stored in a molding DB(S35). An estimate cost is calculated based on a wardrobe, the door DB, the accessory DB, and the molding DB (S36). A web page displaying a text window for inputting a buyer name, a constructing address, and a telephone number, and date for a delivery, a contract deposit, and an account is displayed(S37).

ABSTRACTED-PUB-NO: KR2001073988A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/10

DERWENT-CLASS: T01
EPI-CODES: T01-J05A;

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L11: Entry 7 of 8 File: DWPI Mar 6, 2001

DERWENT-ACC-NO: 2001-191066
DERWENT-WEEK: 200207
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TITLE: Web-based embroidery system displays three-dimensional simulation of selected embroidery pattern to be stitched on selected area of actual garment

INVENTOR: GOLDBERG, B; MAYYA, N ; TSONIS, A ; VLANDIS, C

PATENT-ASSIGNEE: PULSE MICROSYSTEMS LTD (PULSN)

PRIORITY-DATA: 2000US-0533576 (March 23, 2000)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	US 6196146 B1	March 6, 2001		011	D05B019/12
☐	JP 2001314677 A	November 13, 2001		013	D05B025/00
☐	EP 1136899 A2	September 26, 2001	E	000	G05B019/42

DESIGNATED-STATES: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 6196146B1	March 23, 2000	2000US-0533576	
JP2001314677A	March 23, 2001	2001JP-0084261	
EP 1136899A2	March 1, 2001	2001EP-0301886	

INT-CL (IPC): D05 B 19/12; D05 B 25/00; D05 C 5/04; D05 C 7/00; G05 B 19/42; G06 F 17/60

ABSTRACTED-PUB-NO: US 6196146B
BASIC-ABSTRACT:

NOVELTY - Embroidery system has unit for selecting garment to be customized over Internet (IN) and embroidery area (EA) from several locations. Customized embroidery pattern (EP) to be located on EA is chosen and its three-dimensional simulation is displayed. EP control signals are provided over IN to remotely located embroidery machine, for automatically stitching EP on actual garment based on display simulation.

DETAILED DESCRIPTION - A customized embroidery lettering is created and is combined

with preexisting pattern. On-line editing of user selected customized embroidery pattern is performed and its color is varied for providing user color customized pattern. A templated web-site is provided for web-based embroidery system. Alternatively, the user generated image over the Internet is uploaded and converted into an embroidery pattern which is to be confirmed and their stitching cost estimate is to be provided. An INDEPENDENT CLAIM is also included for method for creating and automatically fulfilling user customized embroidery order.

USE - For creating customized patterns on garments through Internet.

ADVANTAGE - User customized embroidery order is created and automatically fulfilled by auto digitizing uploaded designs using true web-based embroidery system permitting both customized order entry and automatic fulfillment and enabling to view three-dimensional embroidery simulation of end product before pattern is stitched.

DESCRIPTION OF DRAWING(S) - The figure shows the flow diagram of the auto digitizing function of the web-based embroidery system.

ABSTRACTED-PUB-NO: US 6196146B
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.4/6

DERWENT-CLASS: F05 T01 T05 T06 X25
CPI-CODES: F02-F02;
EPI-CODES: T01-H07C3B; T01-H07C5E; T01-J05A1; T01-J07B; T01-J10C2; T05-L01D; T06-D03C; X25-T02;

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L11: Entry 8 of 8 File: DWPI Jul 22, 1993

DERWENT-ACC-NO: 1993-243007
DERWENT-WEEK: 199645
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TITLE: Paper feeder mechanism for supplying continuous stationery to laser printer - includes input and output feed units, with guillotines for production of small printed documents

INVENTOR: ABERGEL, E

PATENT-ASSIGNEE: MGI (MGIMN), MGI SARL (MGIMN)

PRIORITY-DATA: 1992FR-0000605 (January 21, 1992)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	WO 9313946 A1	July 22, 1993	F	011	B41J011/70
☐	US 5560725 A	October 1, 1996		004	B41J011/70
☐	FR 2686289 A1	July 23, 1993		000	B41J015/04
☐	EP 619783 A1	October 19, 1994	F	011	B41J011/70
☐	EP 619783 B1	January 10, 1996	F	006	B41J011/70
☐	DE 69301306 E	February 22, 1996		000	B41J011/70
☐	ES 2086930 T3	July 1, 1996		000	B41J011/70

DESIGNATED-STATES: CA RU US AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

CITED-DOCUMENTS:DE 2328510; EP 212754 ; US 4088256 ; US 4234261 ; US 4478143 ; 01Jnl.Ref

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
WO 9313946A1	January 20, 1993	1993WO-FR00053	
US 5560725A	January 20, 1993	1993WO-FR00053	
US 5560725A	July 20, 1994	1994US-0256682	
US 5560725A		WO 9313946	Based on
FR 2686289A1	January 21, 1992	1992FR-0000605	
EP 619783A1	January 20, 1993	1993EP-0904098	

EP 619783A1	January 20, 1993	1993WO-FR00053	
EP 619783A1		WO 9313946	Based on
EP 619783B1	January 20, 1993	1993EP-0904098	
EP 619783B1	January 20, 1993	1993WO-FR00053	
EP 619783B1		WO 9313946	Based on
DE 69301306E	January 20, 1993	1993DE-0601306	
DE 69301306E	January 20, 1993	1993EP-0904098	
DE 69301306E	January 20, 1993	1993WO-FR00053	
DE 69301306E		EP 619783	Based on
DE 69301306E		WO 9313946	Based on
ES 2086930T3	January 20, 1993	1993EP-0904098	
ES 2086930T3		EP 619783	Based on

INT-CL (IPC): B41 J 2/455; B41 J 11/70; B41 J 15/04; B41 J 15/16

ABSTRACTED-PUB-NO: EP 619783B
BASIC-ABSTRACT:

The feeder mechanism includes an input paper feed unit (12) located at the input (22) of a printer which is not configured for continuous paper or card supply. There is also an output paper feed unit (14) located at the output (24) of the printer.

Both input and output feed units include a guillotine (32,34) for cutting the card into strips. There is also a measuring device determining the distance between successive cuts in the paper.

USE/ADVANTAGE - Enables use of laser printer for rapid production of business cards and other small-format documents.

ABSTRACTED-PUB-NO: US 5560725A
EQUIVALENT-ABSTRACTS:

A system for feeding a printing substrate in the form of a continuous coiled web (5) to a laser type printer (10) not designed for this purposes and delivering the said web (5) in a given format, comprising an inlet means (12) and an outlet means (14) respectively disposed at the inlet (22) and at the outlet (24) of the said printer (10), characterised in that they both comprise guillotining means (32, 34) for cutting the said web (5) and a means for measuring the length of said web (5) between two successive cuts.

In combination with a laser printer (10) not designed to receive a continuous strip of printing substrate, a device for feeding a continuous rolled strip (5) of printing substrate to said laser printer (10) and for delivering the said strip (5) in a predetermined format, said feeding and delivering device comprising a means of input (12) and a means of output (14) respectively placed at an input (22) and at an output (24) of the said printer (10); each means of input and output comprising means of repeatedly cutting (32, 34) the said strip (5) and means for measuring the length of the said strip (5) between two successive cuts, wherein said measuring and cutting means (46; 32) of said input cuts the strip (5) to the maximum length of substrate accepted by the printer (10), and said measuring and cutting means (50, 51, 52; 34) of said output cuts the strip (5) again to one of a plurality of shorter lengths selected by a user of the printer (10).

WO 9313946A

CHOSEN-DRAWING: Dwg.1/2 Dwg.1/1 Dwg.1/1

DERWENT-CLASS: P75 T04
EPI-CODES: T04-G04; T04-G06A;

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 8 of 8 returned.

☐ 1. Document ID: JP 59093420 A

Using default format because multiple data bases are involved.

L11: Entry 1 of 8 File: JPAB May 29, 1984

PUB-NO: JP359093420A
DOCUMENT-IDENTIFIER: JP 59093420 A
TITLE: SUPPLYING METHOD OF SPECTACLE LENS WITH OPTIMUM THICKNESS

PUBN-DATE: May 29, 1984

INVENTOR-INFORMATION:
NAME COUNTRY
SAIGO, TAKESHI
KITANI, AKIRA

INT-CL (IPC): G02C 13/00

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. D

☐ 2. Document ID: US 20030172003 A1

L11: Entry 2 of 8 File: DWPI Sep 11, 2003

DERWENT-ACC-NO: 2003-746529
DERWENT-WEEK: 200370
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TITLE: Configurable furniture product designing method using Internet, involves arranging three-dimensional modular furniture component images and data selected by user, according to set of predetermined placement rules

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw. D

☐ 3. Document ID: JP 2002073471 A

L11: Entry 3 of 8 File: DWPI Mar 12, 2002

DERWENT-ACC-NO: 2002-324683
DERWENT-WEEK: 200236

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TITLE: Website creation system inserts designated data into spreadsheet whose dimension is selected depending on layout of website as desired by user

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 4. Document ID: WO 200219153 A1, AU 200114580 A

L11: Entry 4 of 8 File: DWPI Mar 7, 2002

DERWENT-ACC-NO: 2002-339711
DERWENT-WEEK: 200367
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TITLE: Method of generating web site for providing universal interface for managing content on large computer networks by generating one or more pages of web site based upon description of the site and retrieved web site data

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 5. Document ID: KR 2001110568 A

L11: Entry 5 of 8 File: DWPI Dec 13, 2001

DERWENT-ACC-NO: 2002-359864
DERWENT-WEEK: 200239
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TITLE: Cyber interior designing device

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 6. Document ID: KR 2001073988 A

L11: Entry 6 of 8 File: DWPI Aug 4, 2001

DERWENT-ACC-NO: 2002-073528
DERWENT-WEEK: 200210
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TITLE: Method for simulating customized built-in wardrobe using internet

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 7. Document ID: US 6196146 B1, JP 2001314677 A, EP 1136899 A2

L11: Entry 7 of 8 File: DWPI Mar 6, 2001

DERWENT-ACC-NO: 2001-191066

DERWENT-WEEK: 200207
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TITLE: Web-based embroidery system displays three-dimensional simulation of selected embroidery pattern to be stitched on selected area of actual garment

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

☐ 8. Document ID: WO 9313946 A1, US 5560725 A, FR 2686289 A1, EP 619783 A1, EP 619783 B1, DE 69301306 E, ES 2086930 T3

L11: Entry 8 of 8 File: DWPI Jul 22, 1993

DERWENT-ACC-NO: 1993-243007
DERWENT-WEEK: 199645
COPYRIGHT 2004 DERWENT INFORMATION LTD

TITLE: Paper feeder mechanism for supplying continuous stationery to laser printer - includes input and output feed units, with guillotines for production of small printed documents

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw D

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Terms	Documents
L10 and (internet or web or www or online)	8

Display Format: - Change Format

Previous Page Next Page Go to Doc#

First Hit

☐ Generate Collection | Print

L11: Entry 2 of 8 File: DWPI Sep 11, 2003

DERWENT-ACC-NO: 2003-746529
DERWENT-WEEK: 200370
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TITLE: Configurable furniture product designing method using Internet, involves arranging three-dimensional modular furniture component images and data selected by user, according to set of predetermined placement rules

INVENTOR: HOLBROOK, R M; SHANNON, M L

PATENT-ASSIGNEE: HOLBROOK R M (HOLBI), SHANNON M L (SHANI)

PRIORITY-DATA: 2002US-0091806 (March 6, 2002)

Search Selected | Search ALL | Clear

PATENT-FAMILY:

	PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
☐	US 20030172003 A1	September 11, 2003		049	G06F017/60

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US20030172003A1	March 6, 2002	2002US-0091806	

INT-CL (IPC): G06 F 17/60

ABSTRACTED-PUB-NO: US20030172003A
BASIC-ABSTRACT:

NOVELTY - The three-dimensional modular furniture component images and data stored in a database (106) are accessed through a computer network e.g. Internet (103). A portion of the images and data selected by a user is displayed. The displayed images are arranged in a displayed screen according to a set of predetermined placement rules to design a configurable furniture product.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) system for designing configurable furniture product; and

(2) system of configurable unified modular furniture components.

USE - For designing configurable furniture product such as surface-mounted mobile, wall-mounted office furniture e.g. desks, shelves, workstation, tables, home furniture e.g. cabinet assemblies using modular furniture components, by end users e.g. office workers using home offices, tele-commuting office, office workers in large corporate organizations and small business through general purpose computer

e.g. personal computer, Internet appliances, handheld device, cellular phone, multiprocessor system, multiprocessor-based or programmable consumer electronics, network personal computer, minicomputer and mainframe computer in distributed computer network e.g. Internet or in stand-alone environment in kiosk in shopping mall, furniture dealership, retail store and other locations.

ADVANTAGE - Provides mass individual customization of high quality furniture inexpensively. The furniture can be easily assembled in a variety of configurations according to needs and desires of a worker or user easily, without need for additional design, specification and manufacture changes or activity.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the configurable furniture product designing system.

client computer 101

browser program module 102

Internet 103

server computer 104

database 106

ABSTRACTED-PUB-NO: US20030172003A
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.1/15

DERWENT-CLASS: T01
EPI-CODES: T01-J15X; T01-N01A2A;

L6: Entry 1 of 2 File: USPT May 15, 2001

US-PAT-NO: 6230403
DOCUMENT-IDENTIFIER: US 6230403 B1
**** See image for Certificate of Correction ****

TITLE: Interconnection system

DATE-ISSUED: May 15, 2001

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FIELD-OF-SEARCH: 29/846, 29/852, 29/842, 29/843, 174/117F, 174/117FF, 427/97

PRIOR-ART-DISCLOSED:

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Search Selected Search ALL Clear

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☐	5347712	September 1994	Yasuda et al.	29/852

☐	5463555	October 1995	Ward et al.	364/468
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ART-UNIT: 379

PRIMARY-EXAMINER: Young; Lee

ASSISTANT-EXAMINER: Chang; Rick Kiltae

ATTY-AGENT-FIRM: Fish & Richardson P.C.

ABSTRACT:

A multiconductor snake wiring system which uses a flexible bus structure with taps for providing connections to the components is disclosed. An automated facility for manufacturing the snake wiring system is also described. A compact multilayer wiring structure for connecting the components and a unique process for manufacturing the wiring structure are also disclosed.

8 Claims, 66 Drawing figures

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DOCUMENT-IDENTIFIER: US 6230403 B1
** See image for Certificate of Correction **
TITLE: Interconnection system

Application Filing Date (1):
19971106

Brief Summary Text (7):
Linear Technology Corporation, Milpitas, Calif., USA, has offered a software based power supply design program called SwitcherCAD; and National Semiconductor Corporation, Santa Clara, Calif., USA, has offered a software based power supply design program called Simple Switcher. Both programs accept a set of predefined functional specifications and generate parts lists and schematics for a power conversion circuit which meets the specifications. Both programs can produce designs for different topologies (e.g., isolated flyback, non-isolated PWM buck). The user of the programs can modify component values and other design parameters and observe the effects on performance, e.g., conversion efficiency. Both programs use pre-defined equations for generating a solution.

Brief Summary Text (11):
In general, one aspect of the invention includes an automated power supply design system for aiding a user to design a custom power supply. The design system includes an expert system having a rule. An interface for receiving power supply specifications from the user is provided. A component definition system, having an input for receiving the power supply specifications, generates a complement of components and provides mechanical parameters for the components. A mechanical layout system has an input for receiving the mechanical parameters and an input for receiving the power supply specifications and generates a mechanical design of the custom power supply constrained by enforcing the rule.

Brief Summary Text (29):
In another general aspect, the invention includes an automated power supply design system for aiding a user in designing a custom power supply. An expert system includes a rule representing limitations imposed by a manufacturing system. An interface is provided for receiving power supply specifications from the user. A component definition system, having an input for receiving the power supply specifications, generates a complement of components based upon the power supply specifications. The power supply design system constrains, to an acceptable range, the power supply specifications by enforcing the rule and generates a custom power supply design for the custom power supply. An automated manufacturing specifications generator, having an input for receiving the custom power supply design, supplies manufacturing specifications needed by the manufacturing system to manufacture the custom power supply.

Brief Summary Text (30):
In another general aspect, the invention includes a method for aiding a user to design a custom power supply. A rule representing limitations imposed by a manufacturing system is defined. Specifications are received from the user and a complement of components is generated. Mechanical parameters for the components are provided and mechanical design information is collected from the user. The range of

acceptable inputs for the specifications or the mechanical design information is constrained by enforcing the rule.

Brief Summary Text (48):
In another general aspect, the invention includes a method for aiding a user to design a custom power supply. A rule representing limitations imposed by a manufacturing system is defined. Specifications are received from the user and a complement of components is generated based upon the specifications. Manufacturing specifications needed by the manufacturing system to manufacture the custom power supply are generated.

Brief Summary Text (61):
A selected conductor may have a discontinuity dividing the selected conductor along its length.

Detailed Description Text (26):
The cable system allows flexible assembly. Both the length of the cable 400, and the quantity and locations of the module taps, may be adapted to connect virtually any number of converter modules to a standardized pattern of power and control pins on a front-end assembly PCB 70. Once the locations of the converter modules have been defined, the relative positions of the power, control signal and module taps may easily be determined, either by manual measurement or by computer. For example, if a set of converter modules 10b, 20b, 30b and a front-end assembly PCB 70 are arranged as shown in FIG. 9, the length of the cable 400 may be determined by: summing (a) the distance, L1, from the first control pin 74a, past the ends of the two converter modules 10b, 20b, to the point at which the cable takes its first bend 437 (just beyond edge 73 of PCB 70), (b) the distance, L2, from the bend 437 to the point at which the cable takes its second bend 438, (c) the distance, L3, which extends just beyond the furthest power pin 33 on module 30b, and (d) a fixed amount of additional distance L4 to provide a small amount of material (e.g., 1/4 inch) to extend beyond the connection points at the either end of the cable. The types of module taps to be used, and the locations of the taps on the cable 40, are also readily determined based on the types of modules used and the position of each module relative to the control signal and power pins 72, 74 on the front-end PCB 70.

Detailed Description Text (27):
Once the length of the cable 400 and the types and locations of the module taps have been determined, the cable can be assembled. One way to assemble the cable is shown in FIG. 15. In the figure a reel of cable 502 feeds cable into a cutting device 504. The cutting device cuts a length of cable 400 in accordance with cable length information 505 delivered to it (e.g., cable length equals "X"). The cut length of cable 400 is then delivered to an insulation removal system 506 in which portions of the snake cable conductors are exposed by burning portions of the outer insulating layers away with a laser 507. For example, polyester film disintegrates during laser ablation. Other methods may be used to remove the insulation such as chemical decomposition, sand blasting, physical abrasion, and cutting. The locations along the cable 400 at which insulation is removed is determined on the basis of the kinds and locations of the power, control signal, and module taps and the pre-defined connections between control lines 431-436 and module control pins 13a, 23a, 33a.

Detailed Description Text (47):
The system 100 is used by designers who wish to specify and acquire a high-density power supply which is customized to their unique performance requirements. The user interface 110, which runs on a desktop computer (e.g., a personal computer or a workstation), is intended to be used by design engineers at OEM or customer locations. Referring to FIG. 5, a user interface 110, including a mouse 116, a keyboard 114, and a visual display device 112, such as a color CRT monitor, allows the user to interact with system 100. The system 100 provides a menu bar driven

interface for accessing a series of screen displays each of which prompts the user to enter the requisite information.

Detailed Description Text (49):
An interface to a remote computer 190 which provides remote converter design services such as DC-DC converter design generation 192, pricing information 193, delivery information 194, and user registration and software and specification updates 195 is shown in FIG. 5. The remote computer 190 may be located for example at a power supply manufacturer's facility.

Detailed Description Text (50):
Database 180 stores design configuration specifications generated by the system 100. Three additional databases 120, a selection criteria database 122, a rules database 124, and a standard component specifications database 126, may provide information to the system as described more fully below. Five general processes, the system input specification process 130, the module output specification process 140, the thermal analysis and design process 150, the mechanical layout system 160, and the options specification process 170 are depicted in FIG. 5. Each is a step in the power supply design process and will be described in connection with FIGS. 7A-7H which are representations of the display screens presented to the user on visual display 112 during the data entry process.

Detailed Description Text (51):
The system 100 presents the user with a menu bar 225 as shown in FIG. 7A. The menu bar 225 provides means for accessing a series of data entry forms on the screen display each of which prompts the user to enter certain power system specifications. Specifications entered by the user are stored in the design configuration database 180. Examples of data entry screens which may be presented to the user by selection of the respective "Input Specs," "Output Specs," "Thermal," "Mechanical," "Options," and "Project Info" icons on the specification menu bar 225 are shown in FIGS. 7B through 7H. Each screen prompts the user to enter specifications (discussed more fully below) for the power system 40 being designed which are then collected and stored by the power supply specification system in the design configuration database 180. The menu bar 225 is always available to allow the user to move between screens, however, certain menu options may be shaded differently to indicate they are not available. An information area 226 shown in FIG. 7 may be used by system 100 to provide messages to the user.

Detailed Description Text (56):
As shown by block 282 in FIG. 8, the power supply design process begins with the user defining the input specifications. The system input specifications 130 (FIG. 5) are collected from the user with a data entry screen as shown in FIG. 7B. The user specifies the input voltage range 202, the frequency of the AC input voltage 203 if applicable, and the EMI filter requirements 206 (e.g. FCC class A). The user may additionally provide the surge 207 and fast transient 208 input requirements and the ride-through 209 and power-fail timing 210 specifications. A power-factor correcting ("PFC") front-end, an auto-ranging rectifier-capacitor input front-end, or a DC input front-end may be selected using field 201. In FIG. 7B, the auto-ranging front-end option is shown selected as indicated by the darkened selection circle 204 in field 201. The system 100 may automatically provide pre-defined default specifications for the user to accept as is or with changes. For example, the system may provide a default input voltage range where only a nominal voltage is entered. A list of available options in entry fields may also be provided such as indicated by the list pull-down arrow 205 in the Input EMI field 206.

Detailed Description Text (57):
The ride-through time (field 209) may be defined as the minimum uninterrupted length of time after the input voltage is removed that the power supply outputs will continue to operate from energy stored in the front-end storage capacitors. The Power Fail entry (field 210) specifies the minimum amount of time after a power

fail signal is provided that the power supply outputs will continue to operate within specifications. This information is used by the system 100 to select appropriate capacitors for the HUB 92 (FIGS. 2A, 2B).

Detailed Description Text (63):
The system automatically enforces rules which may limit the design options available to the user to aid in ensuring the feasibility of the design. As discussed further below, the rules may be based on many factors, including limitations imposed by the selected manufacturing materials, processes, and equipment. One example of such a rule relates to the maximum number of control lines available in the wiring system selected to build the power supply 40. The number of control lines available in the wiring system may limit the number of stages in the power-up, power-down, and brown-out control sequences. For example, the snake cable system 480 described above has five separate control lines supporting up to five steps in the sequence as compared to three steps for the snake circuit board 801, and eight or more steps in the hybrid snake system. A full printed circuit board or a serial communication option may allow for even more (or an unlimited number of) steps in the sequence.

Detailed Description Text (66):
Referring to block 284 in FIG. 8, the converter modules are designed after the input and output specifications have been collected. The system 100 may connect to the remote computer 190, for example by modem, to generate the designs for the DC-DC converter modules necessary to meet the user-defined input and output specifications. The input and output specifications stored in the design configuration database 180 shown in FIG. 5 are sent to the DC-DC converter design generation process 192 (FIG. 5) which designs the complement of converters required to build the power system 40, as defined by the user and returns the specifications for the converter modules. For example, specifications returned by the design generation process 192 may include the DC-DC converter package size, conversion efficiency, and module part numbers. The system 100 may connect to the remote computer 190 after all of the outputs are specified in step 283 to obtain all of the converter module designs and specifications in a single step. Alternatively, an iterative procedure may be used in which the remote computer is contacted and the specifications obtained for the DC-DC converter(s) for each output after each output is specified in step 283.

Detailed Description Text (67):
Unless the user has chosen to specify DC-DC converter package sizes, the remote converter designer 192 seeks to minimize the volume occupied by the converter modules and thus selects a complement of package sizes required to implement the power system 40 in the least amount of volume. For example, if the user requires that 12 Volts be delivered at 175 Watts, the selection software and rules database will specify an 800 Series package 20, since this is the smallest package which can provide this amount of power. Where the power required for one output voltage exceeds that which can be delivered from a single module, the remote converter designer 192 will specify the requisite number of module packages which will satisfy the output requirements when operated in a power sharing array. For example, the remote DC-DC converter design generator 192 will specify an array of two 900 Series packages, each capable of delivering up to 600 Watts, to satisfy a 48 Volt 850 Watt output requirement. On the other hand, if only 700 watts is required from the 48 Volt output, then the DC-DC converter design generator 192 would specify an array of three 800 Series packages which can deliver the power (250 Watts per module) in less volume than two, larger, 900 Series packages.

Detailed Description Text (74):
In general there are at least two mechanical configurations for each front-end circuit assembly available. The user can choose between different mechanical designs of the same front-end circuit to suit his packaging requirements. For example, FIGS. 22A and 22B show two different mechanical layouts for the same 500

Watt auto-ranging front-end circuitry. All front-end options suitable for the design are stored in the design configuration database 180 and are available to the user for selection.

Detailed Description Text (78):
Referring to block 286 in FIG. 8, the user may proceed to the mechanical specification screen after the complement of power components i.e., the converter modules and the front-end, have been designed or selected and the mechanical characteristics of the power components are stored in the design configuration database 180. The mechanical layout system 160 (FIG. 5) is used to design the physical layout, including the location and orientation of the various power components within the power system 40.

Detailed Description Text (80):
Since more than one mechanical configuration for the front-end assembly may be available, the system 100 may allow the user to switch back and forth between the various front-end options available for the design to facilitate optimization of the mechanical design. For example, the system may allow the user to scroll through the available front-end options by clicking on the front-end icon 234. Alternatively, icons for each of the front-end options may be displayed simultaneously with the un-selected options shown as shaded outlines. The user may then switch between the options by selecting the desired configuration.

Detailed Description Text (82):
The user may specify maximum dimensions for one or more of the outside dimensions of the power supply 40. The user may directly adjust the dimensions of the peripheral edges of the mounting surface (provided that the edges remain outside of the region in which the converters are placed) by dragging the lines with the mouse. Alternatively, the user can adjust the dimensions directly by selecting an edge of the area 230 with the mouse and entering dimensional data directly in field 236 via the keyboard 114. Dimension units are selected using field 235. In field 229, the user may select the mounting plate thickness, e.g., 0.187", 0.25", 0.32", or 0.5" depending on his mechanical and thermal requirements.

Detailed Description Text (85):
The mechanical layout system 160 automatically enforces a set of rules stored in the rules database 124 which limit the mechanical layout being created by the user. The rules may be based upon factors which include, but are not limited to, manufacturing process, material, equipment limitations, safety specifications and agency approval specifications, environmental considerations such as temperature and airflow imposed by the thermal analysis and design system 150, and user specified size and shape constraints stored in the design configuration database 180.

Detailed Description Text (90):
The mechanical layout system 160 will attempt to work within the user specified constraints to arrive at a design solution which provides sufficient surface area to mount all of the required assemblies and provide for adequate system cooling. If the dimensional constraints are inconsistent with either requirement, the user will be notified to make adjustments. In an alternate system embodiment, the system may offer to find an alternate solutions for the user. If the user redefines the maximum temperature for the system baseplate, the remote converter designer 192 may be re-called to redesign the DC-DC converter modules.

Detailed Description Text (106):
The design system 100 uses converter efficiency values and user-specified converter output power ratings which are stored in the design configuration database 180 to calculate the power dissipation in the converter modules, the front-end assembly, and the overall system 40. The system 100 uses this information to evaluate system thermal operating requirements and to select and/or design the appropriate heat

sinks as discussed in detail below.

Detailed Description Text (119):
Referring to block 288 in FIG. 8, the user proceeds to the options specification 170 (FIG. 5) after the thermal design is completed. A sample options specification screen is shown in FIG. 7H. The user may designate the safety agency certification requirements 243, the processing requirements (commercial, industrial, or military) 244, and cabling requirements 245 for the power system 40. The system 100 stores this information in the design configuration database.

Detailed Description Text (121):
Referring to block 289 in FIG. 8, the user proceeds to the project information screen which collects information about the design including, for example, the designer's name and company information, after the design has been completed. After the project information is collected the system 100 again connects to the remote computer 190 transmitting the design information from the design configuration database 180 to the pricing and delivery systems 193 and 194. The pricing and delivery systems then evaluate the design and return price and delivery quotes to the user and a part number which will enable the user to order the complete power system.

Detailed Description Text (125):
Upon receipt of an order from ordering system 330, the production scheduler 340 activates the system manufacturing interface ("SMI") 375. The SMI 375 receives the raw system specifications and generates all of the detailed manufacturing specifications for all of the components necessary to build the system and also generates assembly and test specifications and procedures for the system level assembly. For example, the SMI 375 generates part numbers for all of the parts including those manufactured by manufacturing lines 350 and 360 as well as those that may need to be ordered from outside vendors. All details for each part such as the description and quantity are also provided on the bill of materials ("BOM"). The BOM, including all of the part details, for each system is stored in a database (not shown). The SMI 375 also generates specifications for the (1) internal wiring of the power system potentially including snake cable, snake circuit board, hybrid snake, or standard PCB specifications, (2) output cables, (3) HUB 92 cable, (4) programmable device specifications for the MCU in the PPU, (5) all labels for the system and components in the system, (6) product test specifications, (7) automated machining specifications from the mechanical layout information to fabricate the metal mounting plate and heatsinks if necessary, (8) module specifications for the converter and front-end modules to be manufactured on the module line 350, and (9) assembly instruction display files for workers performing manual assembly tasks.

Detailed Description Text (128):
The SMI chooses the optimal design solution for the snake based upon the mechanical layout of the power components. This is particularly important for low voltage DC input (e.g., 5-24 VDC) designs because of the higher input currents. First each feasible snake routing possibility is determined. Then the power loss is calculated for each routing using the length of the snake between each module and the front-end and the input current for the respective module. The route with the lowest power loss is chosen as the optimal design solution for the snake. The design details (including the route, overall length, bends, taps, and intermediate dimensions) for the optimal snake are provided to the scheduler 340 for manufacture of the snake cable, snake circuit board, or snake hybrid and assembly of the snake onto the PPU.

Detailed Description Text (136):
An example of a computer integrated manufacturing "CIM" system assembly area is shown in FIG. 24. A computer screen 701A displays customer order information provided by the CIM system at a part kitting station 701 enabling the operator to collect the necessary components to build the system. The SMI provides this

information for each order to CRT 701A. At microprocessor programming station 702, the programmable devices for the front-end board are programmed using programming specifications 702A provided by the SMI. The modules, mounting plate, and heatsinks are assembled together at station 703. Bill-of-material and assembly drawing information 703A generated by the SMI are displayed on a CRT near station 703 by the CIM system for reference by the operator. The programmed device is assembled to the front end at station 704 with reference to the assembly drawing displayed at CRT 704A.

Detailed Description Text (139):
The above system allows for reductions in the lead time from design to manufacture of custom power supplies. Using the above-described power supply design system in conjunction with the automated manufacturing of DC-DC converters and other power system sub-assemblies allows power supply manufacturers to ship custom power supplies within a day or two after the specification is complete. A user, such as a power supply design engineer located at a customer's plant, may design a complete custom power supply and have the manufactured unit shipped by the manufacturer within days of determining the specifications for the power supply. The above system therefore allows for drastic reduction of the typical several-month-long cycle from specification to design through manufacture that is currently typical in the industry.

Detailed Description Text (140):
In an alternative embodiment, the module design process may be skipped at block 284 (FIG. 8) and a local algorithm may be used to estimate the specifications and packages for the required complement of DC-DC converter modules. This complement of modules would then be used to allow the mechanical, thermal, and options design to be completed. The detailed designs for each of the converter modules would not be generated by the remote module designer 192 (FIG. 5) until the completed system design is sent by the user to the remote computer at step 289 in FIG. 8. Criteria for determining package size based upon deliverable power requirements may be stored (e.g., as tables or algorithms) in the Component Selection Criteria Database 122. After the converter package outlines are estimated the mechanical layout can be performed by the user. This saves time and allows remote users, without modems, to create first-pass designs.

Detailed Description Text (141):
The local system 110 determines the sizes and quantities of DC-DC converter modules required to deliver each specified output voltage based upon specified output power requirements. In general, the amount of power which can be delivered from a particular size DC-DC converter package (e.g., 10, 20, 30, FIG. 1) is a function of output voltage, converter DC input voltage range and maximum baseplate operating temperature. The DC input voltage range for the DC-DC converter modules in the power system 40 may be determined from the input and output specifications. The AC input voltage range and the type of front-end selected will each affect the range of DC voltage input to the DC-DC converter modules. The maximum baseplate temperature specified by the user will be used for the calculation.

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Other Reference Publication (2):
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First Hit Fwd Refs

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L6: Entry 2 of 2 File: USPT Aug 29, 2000

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DOCUMENT-IDENTIFIER: US 6110213 A

TITLE: Fabrication rules based automated design and manufacturing system and method

DATE-ISSUED: August 29, 2000

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PRIOR-ART-DISCLOSED:

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ART-UNIT: 273

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ABSTRACT:

An automated custom power supply design and manufacturing system uses an expert system containing a set of rules, including manufacturing limitations to limit design choices and ensure feasibility and manufacturability of the design. A design interface collects specifications from a user. A complement of power components for satisfying the electrical specifications is defined and mechanical specifications for each component are provided by the system for use in creating the mechanical design. After the mechanical design is established a thermal analysis is performed and the completed design is returned to a host computer. After an order is received, a computer integrated manufacturing system generates all of the specifications required to manufacture the components for the system and the system.

A multiconductor snake wiring system which uses a flexible bus structure with taps

for providing connections to the components is also disclosed. An automated facility for manufacturing the snake wiring system is also described. A compact multilayer wiring structure for connecting the components and a unique process for manufacturing the wiring structure are also disclosed.

68 Claims, 66 Drawing figures

L6: Entry 2 of 2 File: USPT Aug 29, 2000

DOCUMENT-IDENTIFIER: US 6110213 A
TITLE: Fabrication rules based automated design and manufacturing system and method

Abstract Text (1):
An automated custom power supply design and manufacturing system uses an expert system containing a set of rules, including manufacturing limitations to limit design choices and ensure feasibility and manufacturability of the design. A design interface collects specifications from a user. A complement of power components for satisfying the electrical specifications is defined and mechanical specifications for each component are provided by the system for use in creating the mechanical design. After the mechanical design is established a thermal analysis is performed and the completed design is returned to a host computer. After an order is received, a computer integrated manufacturing system generates all of the specifications required to manufacture the components for the system and the system.

Application Filing Date (1):
19971106

Brief Summary Text (8):
Linear Technology Corporation, Milpitas, Calif., USA, has offered a software based power supply design program called SwitcherCAD; and National Semiconductor Corporation, Santa Clara, Calif., USA, has offered a software based power supply design program called Simple Switcher. Both programs accept a set of predefined functional specifications and generate parts lists and schematics for a power conversion circuit which meets the specifications. Both programs can produce designs for different topologies (e.g., isolated flyback, non-isolated PWM buck). The user of the programs can modify component values and other design parameters and observe the effects on performance, e.g., conversion efficiency. Both programs use pre-defined equations for generating a solution.

Brief Summary Text (12):
In general, one aspect of the invention includes an automated power supply design system for aiding a user to design a custom power supply. The design system includes an expert system having a rule. An interface for receiving power supply specifications from the user is provided. A component definition system, having an input for receiving the power supply specifications, generates a complement of components and provides mechanical parameters for the components. A mechanical layout system has an input for receiving the mechanical parameters and an input for receiving the power supply specifications and generates a mechanical design of the custom power supply constrained by enforcing the rule.

Brief Summary Text (30):
In another general aspect, the invention includes an automated power supply design system for aiding a user in designing a custom power supply. An expert system includes a rule representing limitations imposed by a manufacturing system. An interface is provided for receiving power supply specifications from the user. A component definition system, having an input for receiving the power supply

specifications, generates a complement of components based upon the power supply specifications. The power supply design system constrains, to an acceptable range, the power supply specifications by enforcing the rule and generates a custom power supply design for the custom power supply. An automated manufacturing specifications generator, having an input for receiving the custom power supply design, supplies manufacturing specifications needed by the manufacturing system to manufacture the custom power supply.

Brief Summary Text (31):
In another general aspect, the invention includes a method for aiding a user to design a custom power supply. A rule representing limitations imposed by a manufacturing system is defined. Specifications are received from the user and a complement of components is generated. Mechanical parameters for the components are provided and mechanical design information is collected from the user. The range of acceptable inputs for the specifications or the mechanical design information is constrained by enforcing the rule.

Brief Summary Text (50):
In another general aspect, the invention includes a method for aiding a user to design a custom power supply. A rule representing limitations imposed by a manufacturing system is defined. Specifications are received from the user and a complement of components is generated based upon the specifications. Manufacturing specifications needed by the manufacturing system to manufacture the custom power supply are generated.

Brief Summary Text (63):
A selected conductor may have a discontinuity dividing the selected conductor along its length.

Detailed Description Text (28):
The cable system allows flexible assembly. Both the length of the cable 400, and the quantity and locations of the module taps, may be adapted to connect virtually any number of converter modules to a standardized pattern of power and control pins on a front-end assembly PCB 70. Once the locations of the converter modules have been defined, the relative positions of the power, control signal and module taps may easily be determined, either by manual measurement or by computer. For example, if a set of converter modules 10b, 20b, 30b and a front-end assembly PCB 70 are arranged as shown in FIG. 9, the length of the cable 400 may be determined by: summing (a) the distance, L1, from the first control pin 74a, past the ends of the two converter modules 10b, 20b, to the point at which the cable takes its first bend 437 (just beyond edge 73 of PCB 70), (b) the distance, L2, from the bend 437 to the point at which the cable takes its second bend 438, (c) the distance, L3, which extends just beyond the furthest power pin 33 on module 30b, and (d) a fixed amount of additional distance L4 to provide a small amount of material (e.g., 1/4 inch) to extend beyond the connection points at the either end of the cable. The types of module taps to be used, and the locations of the taps on the cable 40, are also readily determined based on the types of modules used and the position of each module relative to the control signal and power pins 72, 74 on the front-end PCB 70.

Detailed Description Text (29):
Once the length of the cable 400 and the types and locations of the module taps have been determined, the cable can be assembled. One way to assemble the cable is shown in FIG. 15. In the figure a reel of cable 502 feeds cable into a cutting device 504. The cutting device cuts a length of cable 400 in accordance with cable length information 505 delivered to it (e.g., cable length equals "X"). The cut length of cable 400 is then delivered to an insulation removal system 506 in which portions of the snake cable conductors are exposed by burning portions of the outer insulating layers away with a laser 507. For example, polyester film disintegrates during laser ablation. Other methods may be used to remove the insulation such as

chemical decomposition, sand blasting, physical abrasion, and cutting. The locations along the cable 400 at which insulation is removed is determined on the basis of the kinds and locations of the power, control signal, and module taps and the pre-defined connections between control lines 431-436 and module control pins 13a, 23a, 33a.

Detailed Description Text (50):
The system 100 is used by designers who wish to specify and acquire a high-density power supply which is customized to their unique performance requirements. The user interface 110, which runs on a desktop computer (e.g., a personal computer or a workstation), is intended to be used by design engineers at OEM or customer locations. Referring to FIG. 5, a user interface 110, including a mouse 116, a keyboard 114, and a visual display device 112, such as a color CRT monitor, allows the user to interact with system 100. The system 100 provides a menu bar driven interface for accessing a series of screen displays each of which prompts the user to enter the requisite information.

Detailed Description Text (52):
An interface to a remote computer 190 which provides remote converter design services such as DC-DC converter design generation 192, pricing information 193, delivery information 194, and user registration and software and specification updates 195 is shown in FIG. 5. The remote computer 190 may be located for example at a power supply manufacturer's facility.

Detailed Description Text (53):
Database 180 stores design configuration specifications generated by the system 100. Three additional databases 120, a selection criteria database 122, a rules database 124, and a standard component specifications database 126, may provide information to the system as described more fully below. Five general processes, the system input specification process 130, the module output specification process 140, the thermal analysis and design process 150, the mechanical layout system 160, and the options specification process 170 are depicted in FIG. 5. Each is a step in the power supply design process and will be described in connection with FIGS. 7A-7H which are representations of the display screens presented to the user on visual display 112 during the data entry process.

Detailed Description Text (54):
The system 100 presents the user with a menu bar 225 as shown in FIG. 7A. The menu bar 225 provides means for accessing a series of data entry forms on the screen display each of which prompts the user to enter certain power system specifications. Specifications entered by the user are stored in the design configuration database 180. Examples of data entry screens which may be presented to the user by selection of the respective "Input Specs," "Output Specs," "Thermal," "Mechanical," "Options," and "Project Info" icons on the specification menu bar 225 are shown in FIGS. 7B through 7H. Each screen prompts the user to enter specifications (discussed more fully below) for the power system 40 being designed which are then collected and stored by the power supply specification system in the design configuration database 180. The menu bar 225 is always available to allow the user to move between screens, however, certain menu options may be shaded differently to indicate they are not available. An information area 226 shown in FIG. 7 may be used by system 100 to provide messages to the user.

Detailed Description Text (59):
As shown by block 282 in FIG. 8, the power supply design process begins with the user defining the input specifications. The system input specifications 130 (FIG. 5) are collected from the user with a data entry screen as shown in FIG. 7B. The user specifies the input voltage range 202, the frequency of the AC input voltage 203 if applicable, and the EMI filter requirements 206 (e.g. FCC class A). The user may additionally provide the surge 207 and fast transient 208 input requirements and the ride-through 209 and power-fail timing 210 specifications. A power-factor

correcting ("PFC") front-end, an auto-ranging rectifier-capacitor input front-end, or a DC input front-end may be selected using field 201. In FIG. 7B, the auto-ranging front-end option is shown selected as indicated by the darkened selection circle 204 in field 201. The system 100 may automatically provide pre-defined default specifications for the user to accept as is or with changes. For example, the system may provide a default input voltage range where only a nominal voltage is entered. A list of available options in entry fields may also be provided such as indicated by the list pull-down arrow 205 in the Input EMI field 206.

Detailed Description Text (60):
The ride-through time (field 209) may be defined as the minimum uninterrupted length of time after the input voltage is removed that the power supply outputs will continue to operate from energy stored in the front-end storage capacitors. The Power Fail entry (field 210) specifies the minimum amount of time after a power fail signal is provided that the power supply outputs will continue to operate within specifications. This information is used by the system 100 to select appropriate capacitors for the HUB 92 (FIGS. 2A, 2B).

Detailed Description Text (66):
The system automatically enforces rules which may limit the design options available to the user to aid in ensuring the feasibility of the design. As discussed further below, the rules may be based on many factors, including limitations imposed by the selected manufacturing materials, processes, and equipment. One example of such a rule relates to the maximum number of control lines available in the wiring system selected to build the power supply 40. The number of control lines available in the wiring system may limit the number of stages in the power-up, power-down, and brown-out control sequences. For example, the snake cable system 480 described above has five separate control lines supporting up to five steps in the sequence as compared to three steps for the snake circuit board 801, and eight or more steps in the hybrid snake system. A full printed circuit board or a serial communication option may allow for even more (or an unlimited number of) steps in the sequence.

Detailed Description Text (69):
Referring to block 284 in FIG. 8, the converter modules are designed after the input and output specifications have been collected. The system 100 may connect to the remote computer 190, for example by modem, to generate the designs for the DC-DC converter modules necessary to meet the user-defined input and output specifications. The input and output specifications stored in the design configuration database 180 shown in FIG. 5 are sent to the DC-DC converter design generation process 192 (FIG. 5) which designs the complement of converters required to build the power system 40, as defined by the user and returns the specifications for the converter modules. For example, specifications returned by the design generation process 192 may include the DC-DC converter package size, conversion efficiency, and module part numbers. The system 100 may connect to the remote computer 190 after all of the outputs are specified in step 283 to obtain all of the converter module designs and specifications in a single step. Alternatively, an iterative procedure may be used in which the remote computer is contacted and the specifications obtained for the DC-DC converter(s) for each output after each output is specified in step 283.

Detailed Description Text (70):
Unless the user has chosen to specify DC-DC converter package sizes, the remote converter designer 192 seeks to minimize the volume occupied by the converter modules and thus selects a complement of package sizes required to implement the power system 40 in the least amount of volume. For example, if the user requires that 12 Volts be delivered at 175 Watts, the selection software and rules database will specify an 800 Series package 20, since this is the smallest package which can provide this amount of power. Where the power required for one output voltage exceeds that which can be delivered from a single module, the remote converter

designer 192 will specify the requisite number of module packages which will satisfy the output requirements when operated in a power sharing array. For example, the remote DC-DC converter design generator 192 will specify an array of two 900 Series packages, each capable of delivering up to 600 Watts, to satisfy a 48 Volt 850 Watt output requirement. On the other hand, if only 700 watts is required from the 48 Volt output, then the DC-DC converter design generator 192 would specify an array of three 800 Series packages which can deliver the power (250 Watts per module) in less volume than two, larger, 900 Series packages.

Detailed Description Text (78):
In general there are at least two mechanical configurations for each front-end circuit assembly available. The user can choose between different mechanical designs of the same front-end circuit to suit his packaging requirements. For example, FIGS. 22A and 22B show two different mechanical layouts for the same 500 Watt auto-ranging front-end circuitry. All front-end options suitable for the design are stored in the design configuration database 180 and are available to the user for selection.

Detailed Description Text (82):
Referring to block 286 in FIG. 8, the user may proceed to the mechanical specification screen after the complement of power components i.e., the converter modules and the front-end, have been designed or selected and the mechanical characteristics of the power components are stored in the design configuration database 180. The mechanical layout system 160 (FIG. 5) is used to design the physical layout, including the location and orientation of the various power components within the power system 40.

Detailed Description Text (84):
Since more than one mechanical configuration for the front-end assembly may be available, the system 100 may allow the user to switch back and forth between the various front-end options available for the design to facilitate optimization of the mechanical design. For example, the system may allow the user to scroll through the available front-end options by clicking on the front-end icon 234. Alternatively, icons for each of the front-end options may be displayed simultaneously with the un-selected options shown as shaded outlines. The user may then switch between the options by selecting the desired configuration.

Detailed Description Text (86):
The user may specify maximum dimensions for one or more of the outside dimensions of the power supply 40. The user may directly adjust the dimensions of the peripheral edges of the mounting surface (provided that the edges remain outside of the region in which the converters are placed) by dragging the lines with the mouse. Alternatively, the user can adjust the dimensions directly by selecting an edge of the area 230 with the mouse and entering dimensional data directly in field 236 via the keyboard 114. Dimension units are selected using field 235. In field 229, the user may select the mounting plate thickness, e.g., 0.187", 0.25", 0.32", or 0.5" depending on his mechanical and thermal requirements.

Detailed Description Text (89):
The mechanical layout system 160 automatically enforces a set of rules stored in the rules database 124 which limit the mechanical layout being created by the user. The rules may be based upon factors which include, but are not limited to, manufacturing process, material, equipment limitations, safety specifications and agency approval specifications, environmental considerations such as temperature and airflow imposed by the thermal analysis and design system 150, and user specified size and shape constraints stored in the design configuration database 180.

Detailed Description Text (94):
The mechanical layout system 160 will attempt to work within the user specified

constraints to arrive at a design solution which provides sufficient surface area to mount all of the required assemblies and provide for adequate system cooling. If the dimensional constraints are inconsistent with either requirement, the user will be notified to make adjustments. In an alternate system embodiment, the system may offer to find an alternate solutions for the user. If the user redefines the maximum temperature for the system baseplate, the remote converter designer 192 may be re-called to redesign the DC-DC converter modules.

Detailed Description Text (110):
The design system 100 uses converter efficiency values and user-specified converter output power ratings which are stored in the design configuration database 180 to calculate the power dissipation in the converter modules, the front-end assembly, and the overall system 40. The system 100 uses this information to evaluate system thermal operating

Detailed Description Text (124):
Referring to block 288 in FIG. 8, the user proceeds to the options specification 170 (FIG. 5) after the thermal design is completed. A sample options specification screen is shown in FIG. 7H. The user may designate the safety agency certification requirements 243, the processing requirements (commercial, industrial, or military) 244, and cabling requirements 245 for the power system 40. The system 100 stores this information in the design configuration database.

Detailed Description Text (126):
Referring to block 289 in FIG. 8, the user proceeds to the project information screen which collects information about the design including, for example, the designer's name and company information, after the design has been completed. After the project information is collected the system 100 again connects to the remote computer 190 transmitting the design information from the design configuration database 180 to the pricing and delivery systems 193 and 194. The pricing and delivery systems then evaluate the design and return price and delivery quotes to the user and a part number which will enable the user to order the complete power system.

Detailed Description Text (130):
Upon receipt of an order from ordering system 330, the production scheduler 340 activates the system manufacturing interface ("SMI") 375. The SMI 375 receives the raw system specifications and generates all of the detailed manufacturing specifications for all of the components necessary to build the system and also generates assembly and test specifications and procedures for the system level assembly. For example, the SMI 375 generates part numbers for all of the parts including those manufactured by manufacturing lines 350 and 360 as well as those that may need to be ordered from outside vendors. All details for each part such as the description and quantity are also provided on the bill of materials ("BOM"). The BOM, including all of the part details, for each system is stored in a database (not shown). The SMI 375 also generates specifications for the (1) internal wiring of the power system potentially including snake cable, snake circuit board, hybrid snake, or standard PCB specifications, (2) output cables, (3) HUB 92 cable, (4) programmable device specifications for the MCU in the PPU, (5) all labels for the system and components in the system, (6) product test specifications, (7) automated machining specifications from the mechanical layout information to fabricate the metal mounting plate and heatsinks if necessary, (8) module specifications for the converter and front-end modules to be manufactured on the module line 350, and (9) assembly instruction display files for workers performing manual assembly tasks.

Detailed Description Text (133):
The SMI chooses the optimal design solution for the snake based upon the mechanical layout of the power components. This is particularly important for low voltage DC input (e.g., 5-24 VDC) designs because of the higher input currents. First each feasible snake routing possibility is determined. Then the power loss is calculated

for each routing using the length of the snake between each module and the front-end and the input current for the respective module. The route with the lowest power loss is chosen as the optimal design solution for the snake. The design details (including the route, overall length, bends, taps, and intermediate dimensions) for the optimal snake are provided to the scheduler 340 for manufacture of the snake cable, snake circuit board, or snake hybrid and assembly of the snake onto the PPU.

Detailed Description Text (141):
An example of a computer integrated manufacturing "CIM" system assembly area is shown in FIG. 24. A computer screen 701A displays customer order information provided by the CIM system at a part kitting station 701 enabling the operator to collect the necessary components to build the system. The SMI provides this information for each order to CRT 701A. At microprocessor programming station 702, the programmable devices for the front-end board are programmed using programming specifications 702A provided by the SMI. The modules, mounting plate, and heatsinks are assembled together at station 703. Bill-of-material and assembly drawing information 703A generated by the SMI are displayed on a CRT near station 703 by the CIM system for reference by the operator. The programmed device is assembled to the front end at station 704 with reference to the assembly drawing displayed at CRT 704A.

Detailed Description Text (144):
The above system allows for reductions in the lead time from design to manufacture of custom power supplies. Using the above-described power supply design system in conjunction with the automated manufacturing of DC-DC converters and other power system sub-assemblies allows power supply manufacturers to ship custom power supplies within a day or two after the specification is complete. A user, such as a power supply design engineer located at a customer's plant, may design a complete custom power supply and have the manufactured unit shipped by the manufacturer within days of determining the specifications for the power supply. The above system therefore allows for drastic reduction of the typical several-month-long cycle from specification to design through manufacture that is currently typical in the industry.

Detailed Description Text (145):
In an alternative embodiment, the module design process may be skipped at block 284 (FIG. 8) and a local algorithm may be used to estimate the specifications and packages for the required complement of DC-DC converter modules. This complement of modules would then be used to allow the mechanical, thermal, and options design to be completed. The detailed designs for each of the converter modules would not be generated by the remote module designer 192 (FIG. 5) until the completed system design is sent by the user to the remote computer at step 289 in FIG. 8. Criteria for determining package size based upon deliverable power requirements may be stored (e.g., as tables or algorithms) in the Component Selection Criteria Database 122. After the converter package outlines are estimated the mechanical layout can be performed by the user. This saves time and allows remote users, without modems, to create first-pass designs.

Detailed Description Text (146):
The local system 110 determines the sizes and quantities of DC-DC converter modules required to deliver each specified output voltage based upon specified output power requirements. In general, the amount of power which can be delivered from a particular size DC-DC converter package (e.g., 10, 20, 30, FIG. 1) is a function of output voltage, converter DC input voltage range and maximum baseplate operating temperature. The DC input voltage range for the DC-DC converter modules in the power system 40 may be determined from the input and output specifications. The AC input voltage range and the type of front-end selected will each affect the range of DC voltage input to the DC-DC converter modules. The maximum baseplate temperature specified by the user will be used for the calculation.

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CLAIMS:

1. An automated power supply design system for aiding a user to design a custom power supply to be fabricated by a predetermined fabrication facility characterized by a predefined set of tools and processes, the design system comprising:

information representing predetermined limitations which, if observed, ensure that said custom power supply can be fabricated using said predefined set of tools and processes;

an interface for receiving power supply specifications from said user;

a component definition feature having an input for receiving said power supply specifications, said component definition feature generating a complement of components based upon said power supply specifications and providing mechanical parameters for said components;

a mechanical layout feature having an input for receiving said mechanical parameters and an input for receiving said power supply specifications from said user, said system generating a mechanical design of said custom power supply constrained using said information, said system preventing generation of a design that requires tools or processes other than the predefined set of tools and processes.

23. The automated power supply design system of claim 22 wherein said layout feature further comprises a feature allowing the user to manipulate the size or shape of said virtual space.

25. The automated power supply design system of claim 24 wherein said arrangement is created by said user.

44. The automated power supply design system of claim 1 wherein said system provides feasibility information to said user regarding at least one of the following conditions:

(a) cooling requirements;

(b) heatsink dimensions;

(c) component orientation;

(d) component spacing;

(e) safety agency requirements; or

(f) output orientation.

45. The automated power supply design system of claim 1 wherein said custom power supply further comprises a user-defined package and said specifications further comprise at least one of the following details:

(a) a shape of said user-defined package;

(b) a dimension of said user-defined package;

(c) a position of at least one of said components in said user-defined package;

(d) an orientation of at least one of said components in said user-defined package.

46. The automated power supply design system of claim 1 wherein said system provides feasibility information to said user, said feasibility information comprising acceptable relative locations and orientations for said components.

50. An automated power supply design system for aiding a user to design a custom power supply to be manufactured by a predetermined manufacturing system characterized by a predefined set of tools and processes, the design system comprising:

information representing predetermined limitations which, if observed, ensure that said custom power supply can be fabricated using said predefined set of tools and processes;

an interface for receiving power supply specifications from said user;

a component definition feature having an input for receiving said power supply specifications, said component definition feature generating a complement of components based on said power supply specifications;

said power supply design system generating a custom power supply design for said custom power supply constrained using said information, said system preventing generation of a design that requires tools or processes other than the predefined set of tools and processes; and

an automated manufacturing specifications generator having an input for receiving said custom power supply design and supplying manufacturing specifications needed by said manufacturing system to manufacture said custom power supply.

51. A method for aiding a user to design a custom power supply to be manufactured by a predetermined manufacturing system characterized by a predefined set of tools and processes, the method comprising:

receiving specifications from said user;

generating a complement of components;

providing mechanical parameters for said components;

collecting, from said user, mechanical design information for said custom power supply;

generating a design for said custom power supply constrained using information representing predetermined limitations which, if observed, ensure that said custom power supply can be manufactured using said predefined tools and processes, said method preventing generation of a design that requires tools or processes other than the predefined set of tools and processes.

63. A method for aiding a user to design a custom power supply to be manufactured by a predetermined manufacturing system characterized by a predefined set of tools and processes, the method comprising:

receiving specifications from said user;

generating a complement of components based upon said specifications;

generating a design for said custom power supply constrained using information representing predetermined limitations which, if observed, ensure that said custom power supply can be manufactured using said predefined set of tools and processes, said method preventing generation of a design that requires tools or processes other than the predefined set of tools and processes; and

generating manufacturing specifications needed by said manufacturing system to manufacture said custom power supply.

67. An automated power supply design system for aiding a user to design a custom power supply to be fabricated by a predefined set of tools and processes, comprising:

information representing predetermined limitations which, if observed, ensure that said custom power supply can be fabricated using said predefined set of tools and processes;

an input for receiving power supply specifications;

a design engine for generating a complement of components based upon the power supply specifications, mechanical parameters for said components, and a mechanical design of said custom power supply constrained using said information, said system preventing generation of a design that requires tools or processes other than the predefined set of tools and processes.

68. The system of claim 67 wherein the system provides the user with a variety of possibilities for the mechanical design and the user is allowed to make choices about the mechanical layout through interaction with the system.

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TITLE: Method for debiting shipping services

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OTHER PUBLICATIONS

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ART-UNIT: 271

PRIMARY-EXAMINER: Cosimano; Edward R.

ATTY-AGENT-FIRM: Schiff Hardin & Waite

ABSTRACT:

In a method for debiting shipping services on the basis of the respective transport service fee schedules of carriers, accounting operations of the services of various carriers are standardized and simplified by undertaking a central accounting, and the debiting of the services ensues individually or summed. A user program is loaded into a modified postage meter machine that has a printer and a telecommunication unit, at least one service fee table of a carrier being selectable therefrom. The weight or some other physical quantity of a shipment is entered the modified postage meter machine, and a service value is calculated therein in conjunction with the selected shipping parameters. The printer device of the modified postage meter machine prints out an identity ticket that contains the shipping parameters, at least including the shipping fee for the shipment. The information characterizing the shipment are intermediately stored in the modified postage meter machine and the implemented value identification of the shipment is transmitted via a telecommunication connection to a remote data center, either individually or summed. The data received in the data center are acquired, compiled and separately accounted for for each carrier with an accounting program and an invoice is prepared at the data center and is communicated to the consignor for payment. All steps involving storage or handling of funds or monetary credit associated with the shipping service take place exclusively at the data center.

20 Claims, 7 Drawing figures

DOCUMENT-IDENTIFIER: US 6175825 B1
TITLE: Method for debiting shipping services

Abstract Text (1):
In a method for debiting shipping services on the basis of the respective transport service fee schedules of carriers, accounting operations of the services of various carriers are standardized and simplified by undertaking a central accounting, and the debiting of the services ensues individually or summed. A user program is loaded into a modified postage meter machine that has a printer and a telecommunication unit, at least one service fee table of a carrier being selectable therefrom. The weight or some other physical quantity of a shipment is entered the modified postage meter machine, and a service value is calculated therein in conjunction with the selected shipping parameters. The printer device of the modified postage meter machine prints out an identity ticket that contains the shipping parameters, at least including the shipping fee for the shipment. The information characterizing the shipment are intermediately stored in the modified postage meter machine and the implemented value identification of the shipment is transmitted via a telecommunication connection to a remote data center, either individually or summed. The data received in the data center are acquired, compiled and separately accounted for for each carrier with an accounting program and an invoice is prepared at the data center and is communicated to the consignor for payment. All steps involving storage or handling of funds or monetary credit associated with the shipping service take place exclusively at the data center.

Application Filing Date (1):
19980629

Detailed Description Text (9):
The postage meter machine 3 further contains an input unit 31 for entering shipment parameters such as, for example, the weight and the dimensions of the shipment 5, additional information and/or for the activation of selectable options of the user program 33 by the consignor 1. A display 32 supplies input requirements (prompts) necessary for the use of the postage meter machine 3, shows alternative selection options, and shows the calculated service values.

Detailed Description Text (17):
Alternatively, an item limit number of identity tickets can be preset within the postage meter machine 3, with a data transmission to the data center 4 being automatically triggered when this limit is reached or exceeded. An automatic data transmission dependent on the upward transgression of a summed calculation quantity in the buffer memory of the postage meter machine 3 is likewise possible for a specific number of (but at least for two) shipment items. If the data transmission cycles are limited by a set quantity, then it is advantageous to inform the consignor 1 of the automatic transmission of the data, such as by causing the printer device 35 to remain locked until the consignor 1 actuates an enable key of the input unit 31. For example, this can be a key that triggers and/or terminates a manual activation of the data transmission to the data center 4. Advantageously, automatic data transmission sequences should ensue at times during which the postage meter machine 3 is not employed for the calculation of service fees and for producing identity tickets. In particular, the nighttime hours are available for

such data transmission since the charges for the connection setup with the data center 4 are also less expensive during that time.

Detailed Description Text (22):
The consignor 1 undertakes a weight determination for the shipment 5 with a scale 2 that accompanies the postage meter machine 3. The identified weight value is entered into the postage meter machine 3. The input ensues either manually by the consignor 1 via the input unit 31 of the postage meter machine 3 or automatically via a signal line 21 that connects the scale 2 to the postage meter machine 3. Additional information such as, for example, the dimensions of the shipment 5 can be entered with the input unit 31 if the freight regulations of the carriers 61 through 64 require this information. Moreover, the entry of further shipping parameters such as, for example, the shipment type, the shipping form and the destination also ensues via the input unit 31. These selection parameters and others are preferably optionally selectable from a menu structure and can be activated by input keys or key sequences. The user program 33 can embody routines which allow the consignor 1 to view the service fee schedules of various carriers 61 through 64 and to select the most beneficial service vendor on the basis of the desired shipping conditions. European Application 747864 discloses in detail how the most beneficial service vendor can be determined by accessing valid service fee tables for at least two carriers.

Detailed Description Text (23):
The calculation of the service value for the transport service ensues in the postage meter machine 3. After entry of the shipping particulars required for the calculation, but at least upon the entry or existing storage of a current service fee table, and the entry of the destination and the selected carrier 6, the postage meter machine 3 is activated for making this calculation. The fee charges can be designed to be customer-specific. A prompt for the consignor 1 to initiate printing of the displayed calculation value can be provided, but can be optionally bypassed particularly given a number of identical shipments 5. Likewise, the authorized use of the postage meter machine 3, or only of the printer 35, can be protected by a password.

Detailed Description Text (28):
As shown in FIG. 2, a scale is not needed if the service cost for a shipment 5 is not to be determined by weighing; rather, the carrier 6 also performs the shipping service on the basis of other measured and/or estimated quantities in the calculation of the service values. This is dependent on the fee schedule offerings of the carriers 61 through 64 that accept a value determination for a shipping service for a shipment that is not based on weight determination. Instead of the cost determination by weighing, other physical shipment parameters can be determined at the location of the consignor 1, which, individually or combined with one another, allow the calculation of the value quantity of the shipping service according to the inventive method. For example, the estimated weight, the determined volume size or the piece number for shipments 5 can represent an adequate criterion for entry into the postage meter machine 3 and for service calculation. This embodiment is not limited to the aforementioned shipment quantities. All reviewable particulars that characterize a shipment can be employed or the combination of these physical quantities.

CLAIMS:

1. A method for debiting shipping services for a shipment dependent on transport service fee schedules for a carrier performing a shipping service, comprising the steps of:

loading a user program into a computerized device disposed at a consignor including a printer and a telecommunication port, said user program including a service fee table for at least one shipment carrier;

producing a physical quantity value representing at least one physical quantity of a shipment;

entering said physical quantity value into said computerized device;

entering further shipment data into said computerized device, said further shipment data including at least destination data representing a shipment destination and carrier data representing said carrier;

calculating a service cost for transporting said shipment to a destination designated by said destination data and using a carrier designated by said carrier data, in said user program using said service fee table;

supplying a blank identify ticket to said printer and printing a printed identity ticket in a print operation at said printer of said computerized device having shipment parameters thereon for transporting said shipment and including at least a printed representation of said service cost, an identifier for said computerized device, information relating to said print operation, said destination and said carrier;

affixing said printed identity ticket to said shipment;

intermediately storing shipment parameter data representing the shipment parameters on said identity ticket in an intermediate memory in said computerized device;

producing a telecommunication link, via said telecommunication port, between said computerized device and a remote data center;

for each said print operation, transferring said shipment parameter data stored in said intermediate memory to said data center via said telecommunication link;

at said data center, receiving said shipment parameter data and compiling said shipment parameter data and conducting an accounting program exclusively at said data center for producing a monetary settlement for said shipment for each carrier and for each consignor; and

communicating said monetary settlement from said data center to each consignor for payment of said service value.

6. A method as claimed in claim 1 wherein the step of producing said physical quantity value comprises manually determining said physical quantity value and manually entering said physical quantity value into said computerized device via an input unit of said computerized device.

7. A method as claimed in claim 1 wherein the step of producing said physical quantity value comprises manually weighing said shipment to obtain a weight value and manually entering said weight value together with further shipment parameters into said computerized device via an input unit of said computerized device.

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L8: Entry 1 of 1 File: USPT Aug 22, 2000

US-PAT-NO: 6105520
DOCUMENT-IDENTIFIER: US 6105520 A
**** See image for Certificate of Correction ****

TITLE: Quilt making automatic scheduling system and method

DATE-ISSUED: August 22, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Frazer; James T.	Tamarac	FL		
Hall, Jr.; Von	Mt. Juliet	TN		
White; M. Burl	Coral Springs	FL		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
L&P Property Management Company	South Gate	CA			02

APPL-NO: 09/ 301653 [PALM]
DATE FILED: April 28, 1999

PARENT-CASE:
This application claims priority to U.S. Provisional application Ser. No. 60/122,749, filed Feb. 26, 1999, hereby expressly incorporated herein by reference.

INT-CL: [07] D05 B 11/00, D05 B 19/00

US-CL-ISSUED: 112/117; 112/155, 112/475.08; 364/470.09
US-CL-CURRENT: 112/117; 112/155, 112/475.08, 700/138

FIELD-OF-SEARCH: 112/117, 112/118, 112/119, 112/470.01, 112/470.06, 112/475.08, 112/155, 112/163, 112/167, 112/475.05, 112/102.5, 364/470.07, 364/470.09

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL | Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	5603270	February 1997	White et al.	112/117
☐	5921194	July 1999	Komuro et al.	112/470.01

☐	5954005	September 1999	Sekine et al.	112/470.04

ART-UNIT: 371

PRIMARY-EXAMINER: Nerbun; Peter

ATTY-AGENT-FIRM: Wood, Herron & Evans, L.L.P.

ABSTRACT:

A quilt manufacturing facility having a plurality of quilting machines is provided with an automated scheduling system which automatically generates and distributes schedules for the making of quilted products listed in input customer orders. The generated schedules are distributed in the form of computer files downloaded to the controllers of the machines. The generation of schedules is carried out by a programmed central scheduling computer which considers stored data identifying each of the machines and their capabilities, the materials available for production of the products and the product specifications, and determines the machine setting and material requirements for each product on the customer order list as well as the required completion times for each of the ordered products. Schedules for each machine are generated so as to schedule each product with other products having similar machine setting or material requirements in a manner that is consistent with the required completion or delivery times for each product. The scheduling optimizes the use of the quilting machines and operator time by reducing the number of machine setups and material changes. Information is collected from each machine which records all downtime of the machines and the reasons therefor and which records a history of the actual performance of the machines for use by the scheduling computer in more accurately evaluating future schedules.

19 Claims, 41 Drawing figures

L8: Entry 1 of 1 File: USPT Aug 22, 2000

DOCUMENT-IDENTIFIER: US 6105520 A
**** See image for Certificate of Correction ****
TITLE: Quilt making automatic scheduling system and method

Application Filing Date (1):
19990428

Brief Summary Text (5):
High volume products that employ quilting processes are made by bedding manufacturers and manufacturers of some other products. In the manufacture of mattresses, for example, covers that surround spring interior assemblies are formed of quilted fabrics. Such quilted mattress covers are often manufactured on high speed automated quilting machines of the multi-needle type, which employ arrays of needles above a needle plate below which are arranged corresponding arrays of cooperating stitching elements. Multi-needle quilting machines for mattress cover production are typically chain stitch machines which quilt multiple patterns simultaneously on web fed material using series of double lock chain stitches.

Brief Summary Text (6):
Multiple needle quilters of the type illustrated in U.S. Pat. Nos. 5,154,130 and 5,554,589, hereby expressly incorporated by reference herein, are customarily used for the stitching of such mattress covers on multi-layered web fed material. Such multi-needle quilters use an array of cooperating chain stitch sewing elements, one of which is a needle positioned above the material and another of which is a looper below the material opposite the material from the needle. The entire arrays of both needles and loopers are mechanically linked together to form the stitches while moving in unison in two dimensions relative to the material, parallel to the plane of the material in paths that corresponds to identical patterns of a pattern array. It is common that the material is what is moved to form the patterns while the stitching element arrays remain stationary relative to the frame of the machine.

Brief Summary Text (9):
In the prior art, a variety of methods are in use in factories in which quilts are produced. In even the more sophisticated prior art case, a factory might be provided with a central computer system that provides functions for customer order entry and the generation of production requirements by way of a management system. Such a plant may be provided with an automated batch mode multi-needle web-fed quilting machine such as described in U.S. Pat. No. 5,554,589 referred to above. In such a factory, orders are taken from customers and entered into the central computer system via a terminal. Delivery dates are determined either by customer requirements or by availability of manufacturing capacity.

Brief Summary Text (17):
In accordance with principles of the present invention, a quilt manufacturing system is provided having a plurality of quilting machines, preferably at least a plurality of multi-needle web-fed quilting machines, each having a programmed controller operative to control the respective machines to produce quilted products on multi-layered material in accordance with product configuration data. A

scheduling sub-system evaluates all orders and information required to produce the products ordered by customers and to download optimized production schedules to the machines for use in producing the products.

Detailed Description Text (5):
Understanding of how the scheduling system 50 manages the quilting machines 10 is facilitated by an understanding of the quilting machines 10, particularly machine 10a illustrated in FIG. 2. The machine 10a includes a quilting station 11 at which stitched patterns are applied to a multiple layered web of fabric 12 to form a quilted web 13. The multiple layered web of fabric 12 is formed by combining a web of top goods 15 from a top goods supply roll 16, a web of backing 17 from a backing material supply roll 18, and a web of filler 19 interposed between the backing and top goods webs at the upstream end 20 of the quilting station 11.

Detailed Description Text (6):
The quilting station 11 has front and back sets of transversely extending, transversely shiftable, reversible rollers 21 and 22, respectively, which engage and move the web 12 relative to a stitching mechanism 23 at the quilting station. Of the rollers 21 and 22, the rollers 22 are the primary feed rollers of the quilting station that maintain tension on the web 12 between the rollers 21 and 22. The feed rollers manipulate the web 12 longitudinally relative to the stitching mechanism 23 to define the stitched pattern being applied to the web 12, and control the overall advance or downstream feed of the quilted web 13.

Detailed Description Text (7):
Attached to the shaft of one of the feed rollers 22 is a digital optical encoder 27, or other type of measuring instrument, for measuring the linear feed of the web 13 through the nip of the rollers 22. The encoder 27 has an output 28 input of a programmable controller 29, which is preferably a microprocessor based digitally programmable industrial controller. In the course of quilting, the web may be longitudinally reversed several times through the quilting station 11 in order to sew 360.degree. or other complex patterns, so the encoder is direction sensitive. Other details of the quilting station 11 are set forth in U.S. Pat. No. 5,154,130 referred to above.

Detailed Description Text (8):
Downstream of the quilting station 11, the machine 10a includes a panel cutter 30 having a set of web feed elements 31 at its upstream end which engage the quilted web 13 being fed from the quilting station 11 and advance it onto a downwardly inclined table 32. The feed elements 31 are preferably opposed feed rollers which engage the quilted web 13 and maintain upstream tension on the quilted web 13. The panel cutter 30 includes a cutoff mechanism 33, which includes a transverse blade or knife 34 which cuts the quilted web 13 in response to a cutoff signal from the controller 29 along line 37, to transversely sever a finished quilted panel 35. At the lower end of the table 32 is a photo-detector or other sensor 36 operable to detect the presence of quilted fabric and send a signal along input line 39 to the controller 29.

Detailed Description Text (9):
Between the quilting station 11 and the panel cutter 30 is an accumulator section 40 which accumulates quilted web 13 fed from the feed rollers 22 and supplies quilted web 13 to the feed elements 31 of the panel cutter 30, and to resupply web 13 to the feed rollers 22 when the feed of the web 13 is reversed. The accumulator section 40 includes a transverse accumulator roll 41 that rides in vertical track 42 and is generally is supported by the web 13 such that the weight of the roll 31 maintains a generally uniform tension on the web 13. A limit switch or other roll detector 44 at the bottom of track 42 generates a signal along an input line 45 to the controller 29 to signal that the accumulator 40 is at its maximum capacity. A similar switch (not shown) may be provided at the top of the track 42 to signal that the accumulator is at its minimum capacity.

Detailed Description Text (10):
The controller 29 is programmed to respond to the signals at its inputs and to control the feed and cutoff in such a way as to synchronize the quilting, feeding and cutting so as to compensate for the shrinkage or gathering of the material during quilting that changes its dimensions. The shrinkage compensation is a solution to the problem caused by that fact that, in the process, the stitching sewn by the stitching mechanism tends to shorten the longitudinal dimension or length of the fabric due to the gathering of the material during quilting. The controller 29 predicts this shrinkage by repeated measurements. The amount of contraction or shrinkage varies as the quilted patterns are changed by the pattern control program of the controller 29. The shrinkage also varies as factors such as humidity in the plant vary, and due to other factors that cannot be readily predicted. The calculated shrinkage is used by the controller 29 to control the amount of feed of web 12 to the quilting station 11, to control the location of the quilted pattern in relation to the web 12, to control stitching mechanism 23 and drive assembly 49 to adjust the elongation or spacing of the quilted patterns so that they occupy the appropriate length or positions on the shrunken cut panels, and to control the feed of the quilted web 13 out of the quilting station 11. The control also uses the shrinkage calculation to either register the patterns on the web in relation to the locations of material splices on the web, or to signal where splices are to be made in the webs of fabric 15, 17 and 19 being fed to the quilter.

Detailed Description Text (25):
6. Products Filed--The Products file is the actual bill of materials for a quilted panel. The file contains all of the information that a quilting machine 10 needs to quilt a panel. The records in this file contain information on the materials to be used, the pattern to be quilted, the quilting machine settings and the panel cutter settings. These include, for example, Product.sub.-- ID, Product.sub.-- Description, Pattern.sub.-- ID (which links to the Shape file), Pattern.sub.-- Type, Units (English or metric), Pattern.sub.-- Length, Pattern.sub.-- Width, Stitch.sub.-- Size, Speed.sub.-- To.sub.-- Run, Needle.sub.-- Setting, Feed.sub.-- Compensation, Carriage.sub.-- Compensation, Number.sub.-- Of.sub.-- Tacks (pattern repeats), Feed.sub.-- Jump (distance between repeats), Tail.sub.-- Length, Top.sub.-- Goods, Fill (combinations 1 through 4), Backing, Panel.sub.-- width, Panel.sub.-- Length, Default.sub.-- Machine, Panel or Windup, Average.sub.-- Run.sub.-- Time, Pattern.sub.-- Class, and other product parameters.

Detailed Description Text (44):
Where a job is to be added to the schedule, an Add command 103 is selected, which opens the inset window 104 illustrated in FIG. 4Q. A job is added by entering a product number and quantity, or by pressing a command key such as F2 to display the Products list from which a product may be selected. By selecting a Go command 105, as illustrated in FIG. 4R, and entering the Sequence Number of an item, the cursor can be moved directly to an item in the schedule.

Detailed Description Text (50):
With the Autoschedule routine performed as in FIG. 3D, selection of Autoschedule under the Schedule menu prompts the user for sort information by which the user designates fields for use in modifying a proposed optimum schedule that will be automatically generated. The information provided by the user also designates job criteria, including the production time segment, that is the beginning and ending points of the production run, for the jobs that are to be rescheduled. In response to this input information, the autoschedule computer 51 automatically imports all of the jobs below the "set point" of each machine that match the criteria and assigns them to default machines that are specified for each of the defined products in the Products file. Jobs above a machine set point are those completed, in progress, or queued to the point that their rescheduling would disrupt production. If no default machine data is provided the software makes the closest

fit between product and machine capabilities and assigns the job based on the fit.

Detailed Description Text (52):
handling requirements, customer, designated ship dates, etc. Each such change is associated with a cost factor such as, for example, a time value that represents the amount of machine downtime involved, or for example a material waste factor. In the default sort order, the highest sort fields are the priority and delivery deadlines. Next, the sort is by default machine. Next, the sort is by needle setting, which may involve a time of from 30 to 45 minutes. Next, the sort is by material types, preferably top goods first, then first fill, then second fill, then last fill, then backing material. Material changes usually take less than five minutes, but location of the different materials about the facility is a factor to be considered, where practical. Next, the sort is by pattern. Patterns are changed automatically, so time is not a factor. Pattern changes often produce a strip of waste material. Sometimes panel width is considered, particularly where the facility gives priority to the stacking and handling of finished products. The sort order can be changed, and often differs from facility to facility. In generating the automated scheduling, different combinations and orders of product are tested and the cost factors totaled. The schedule with the lowest cost factor that meets all required criteria is deemed optimum.

CLAIMS:

9. The apparatus of claim 1 wherein:

a plurality of the quilting machines are multi-needle quilting machines that simultaneously quilt pluralities of patterns onto multi-layered fabric webs in accordance with the settings of needles and in accordance with stored data files containing machine control information for quilting various patterns.